

CHECKLIST TO DESIGNATE AREAS OF EVALUATION FOR REQUESTS FOR PROPOSAL (RFP)

Research Administration Use Only

	REQUISITION NUMBER 1959	DUE DATE 4/4/2016	TIME DUE Noon est
MDOT PROJECT MANAGER Eric Burns	JOB NUMBER (JN)		CONTROL SECTION (CS)
DESCRIPTION Asset Management of Retaining Walls			
Check all items to be included in RFP		Provide only checked items below in proposal	
Check the appropriate Tier in the box below			
<input type="checkbox"/> TIER I (\$50,000-\$150,999)	<input checked="" type="checkbox"/> TIER II (\$150,000- \$1,000,000)	<input type="checkbox"/> TIER III (>\$1,000,000)	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Understanding of Service
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Past Performance
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Qualifications of Team
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Quality Assurance/Quality Control
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Location: The percentage of work performed in Michigan will be used for all selections unless the project is for on-site inspection or survey activities, then location should be scored using the distance from the consultant office to the on-site inspection or survey activity.
N/A	N/A	<input type="checkbox"/>	Presentation
N/A	N/A	<input type="checkbox"/>	Technical Proposal (if Presentation is required)

The prime consultant must be a Michigan university. The prime consultant/vendor is responsible for the successful completion of the service and is expected to perform at least 40 percent of the services, by dollar value. The basis of payment is Actual Costs as defined in standard MDOT contracts.

To submit a proposal, please follow the [MDOT Consultant Vendor Selection Guidelines for Research Administration-Revised September 2015](#).

RFP SPECIFIC INFORMATION

Problem Title: Asset Management of Retaining Walls

OR Number: OR15-114

This is Best Value Selection which means the budget amount submitted with the proposal is a component of the proposal score, not the determining factor of the selection.

PROPOSAL SUBMITTAL INFORMATION

PROPOSAL AND BID SHEET EMAIL ADDRESS –

mdot-rfp-response@michigan.gov with a CC to
mdot-research@michigan.gov

GENERAL INFORMATION

Any questions relative to the Research Problem Statement must be submitted by e-mail to:

mdot-research@michigan.gov. Questions must be received by 4 business days prior to the RFP due date at 5:00 p.m. EST. All questions and answers will be placed on the MDOT RFP Web site as soon as possible after receipt of the questions and at least three (3) days prior to the due date listed above. The names of organizations submitting questions will not be disclosed.

MDOT is an equal opportunity employer and MDOT DBE firms are encouraged to apply. The participating DBE firm, as currently certified by MDOT's Office of Equal Opportunity, shall be listed in the Proposal.

MDOT AND RESEARCH FORMS REQUIRED AS PART OF PROPOSAL SUBMISSION:

5100D- Request for Proposal Cover Sheet

Schedule of Research Activities Form- Appendix B

Deliverables Table- Appendix A

5100J- Consultant Data and Presignature sheet is required for signatory on this proposal

Research Proposal Budget Form Worksheet Appendix C (Universities)

Or

Bid Sheet and Budget Exhibits required in [Priced Proposal Guidelines](#) (Consultants)

MANDATORY ELECTRONIC SUBMITTAL

Proposals submitted for this project must be submitted electronically.

The following are Requirements for Electronic Submittals:

- Proposals must be prepared using the most current Research guidelines found at the top of the page- [MDOT – Research Proposal Guidelines](#).
- The proposal must be bookmarked to clearly identify the proposal sections (See Below)
- For any section not required per the RFP, the bookmark must be edited to include “N/A” after the bookmark title.
- Proposals must be assembled and saved as a single PDF file
- PDF file must be 5 megabytes or smaller
- PDF file must be submitted via e-mail to MDOT-RFP-Response@michigan.gov with a cc to mdot-research@michigan.gov
- MDOT’s requisition number and company name must be included in the subject line of the e-mail. The PDF shall be named using the following format:
 - **Requisition#XXX_Company Name.PDF**
- MDOT will not accept multiple submittals
- Proposals must be *received* by MDOT on or before the due date and time specified in each RFP

If the submittals do not comply with the requirements, they may be determined unresponsive.

The Proposer will receive an e-mail reply/notification from MDOT when the proposal is received. Please retain a copy of this e-mail as proof that the proposal was received on time. Proposers are responsible for ensuring the MDOT receives the proposal on time.

****Contact Contract Services Division immediately at 517-373-4680 if you do not get an auto response****

Required Bookmarking Format for RESEARCH ADMINISTRATION PROPOSALS ONLY:

1. Request for Proposal Cover Sheet Form 5100D
 - A. Consultant Data and Signature Sheet, Form 5100J (if applicable)
2. Understanding of Service
3. Qualifications of Team
4. Past Performance
5. Quality Assurance / Quality Control Plan
6. Location
7. Pricing Documents/Bid Sheet (if applicable)
8. Appendices

Michigan Department of Transportation

SCOPE OF SERVICE FOR RESEARCH SERVICES

TITLE: Asset Management of Retaining Walls
OR#: 15-114

Revised 3/16/2016

LOCATION: Statewide

WORK DESCRIPTION: Research on Asset Management of Retaining Walls

ANTICIPATED START DATE: October 1, 2016

ANTICIPATED COMPLETION DATE: June 30, 2018

MDOT RESEARCH PROJECT ADMINISTRATION MANAGER:

Eric Burns

6333 Old Lansing Road

Lansing, Michigan 48917

E-MAIL: mdot-research@michigan.gov

GENERAL INFORMATION:

1. PROBLEM TO ADDRESS

According to the NCHRP's Guide to Asset Management of Earth Retaining Structures (2009), 13 other state transportation departments' inventory and inspect their earth retaining structures. The Michigan Department of Transportation (MDOT) is beginning to inspect and inventory these retaining walls. The retaining walls cost on average \$100 per square foot of surface area to construct; given the common use of these structures in the Michigan highway network (especially in the Metro Region), this investment is worthy of asset management. With MAP-21 requiring state transportation agencies to adopt a risk-based asset management strategy for all structural assets in their transportation network, retaining walls emerge as a high-priority for risk management and mitigation given the consequences associated with their failure, including the potential safety hazards, roadway closures, disruption of utilities behind the walls, and destruction of property.

Three highway retaining wall structures in Michigan have exhibited evident levels of rotation and displacement in the past few years:

- 200 ft of wall on M-10 Northbound North of Schaefer Highway
- 300 ft of wall on M-10 Southbound North of Myers Rd
- I-696 Eastbound wall East of Evergreen Avenue

Possible causes of the wall failures include improper construction, inferior materials, design factors, and/or other conditions which can lead to accelerated deterioration of critical retaining wall elements (For example: Post tensioned tie backs, drainage, reinforced concrete) vital to performance and safety. Retaining walls undergoing progressive failure exhibit visually signs, but walls early in their deterioration cycle would be harder to evaluate and assess based on visual inspections. When large wall displacements are observed, this leads to emergency contracts for wall excavation or wall reconstruction, as well as mobility disruptions for highway and possibly local agency roadways. Development of retaining wall inspection criteria will aid wall inspections. Developing guidance on when to implement a monitoring system that can assess retaining walls will help engineers make timely decisions. Inspection criteria and guidance on monitoring implementation will also allow MDOT to more efficiently deploy agency resources to upkeep and maintain existing retaining wall systems in the state. The age and condition of the walls is also a factor as many of these were constructed in the 1960's, 1970's, and 1980's.

2. RESEARCH OBJECTIVES

1. Review the three retaining wall failures in Michigan as listed above and other failures in surrounding states.
2. Investigate retaining wall repairs.
3. Review retaining wall conditions and inventory in 15 field reviews. Perform field reviews for 15 retaining walls to be determined (3 in Grand Region, 2 in University Region, 10 in Metro Region). Preliminary inventory will be provided by MDOT.
4. Research and recommend wall monitoring equipment, methods, and frequencies.
5. Establish applicable Structure Inventory and Appraisal (SI&A) items for managing earth retaining structures. Utilize existing SI&A items for bridge management and inspection when possible.
6. Develop routine and in-depth inspection procedures to be incorporated into the Michigan Structure Inspection Manual (MiSIM). Provide recommended inspection frequencies according to condition, design, and other factors.
- ~~7. Develop inventory spreadsheet for asset management to be incorporated into Michigan Bridge Management and Inspection System (MiBRIDGE). Develop a statewide inventory of earth retaining structures along MDOT owned routes. Include designated coordinates for location, type of design, height, length, year constructed, and other applicable inventory items (Field verification of wall condition outside of Metro Region is not required). This work will require~~

~~contacting appropriate staff at each MDOT Transportation Service Center and researching plans in ProjectWise.~~

Develop an inventory spreadsheet for asset management to be incorporated into Michigan Bridge Management and Inspection System (MiBRIDGE). Develop an inventory of earth retaining structures along MDOT owned routes populated with at least 15 retaining walls. Include designated coordinates for location, type of design, height, length, year constructed, and other applicable inventory items. The location of the 15 retaining walls will be determined after the research project starts. The distribution of walls shall be as follows: 3 in Grand Region, 2 in University Region, 10 in Metro Region. A preliminary inventory will be provided by MDOT. This work will require contacting appropriate staff at each MDOT Transportation Service Center and researching plans in ProjectWise.

8. Develop a retaining wall element inspection manual using a format similar to the Michigan Bridge Element Inspection Manual (MiBEIM). Develop material specific and miscellaneous elements for common design types. Create defects and provide condition state definitions to assign quantities in good, fair, poor, or severe condition.

3. URGENCY AND IMPLEMENTATION BENEFIT TO MDOT

The ability to monitor, assess, inspect, manage, and mitigate retaining walls should be improved. Inspection procedures will be implemented into the MiSIM. Retaining wall inventory and asset management would be incorporated into MiBRIDGE. Retaining wall elements would be incorporated into a retaining wall element inspection manual.

MDOT will benefit from the possible early detection of retaining wall failures, which may require wall rehabilitation instead of complete wall reconstruction. Construction contracts could be let versus emergency repair contracts. MDOT will also benefit from the asset management and collection of the retaining wall data.

4. RISKS OR OBSTACLES TO RESEARCH

The retaining wall inventory needs to be verified. Old plans may be located in ProjectWise and some may be missing. The field work necessary to verify inventory and determine defects may be difficult. 15 retaining walls will require field inspection. Personal protection equipment must be worn and some walls may require lane or shoulder closures. Monitoring systems may only provide limited information on the condition of retaining walls as some wall elements are inaccessible.

5. DESIRED QUALIFICATIONS IN AN INVESTIGATOR(S)

The ideal team would include the following: Geotechnical Engineer/Structural Engineer with experience in retaining wall design and construction, Bridge Safety Inspection Engineer with experience in bridge safety inspection including elements, and an experienced Principal Investigator from a university to develop and document methods. The overall team would have knowledge of

design, construction, and inspection of concrete structures, including retaining walls, and a knowledge of structural investigations.

There is no statistical qualification requirement for this proposal.

CONSULTANT RESPONSIBILITIES:

1. Perform literature review and nationwide DOT survey to assess the current state-of-the-art monitoring of retaining wall structures. (Include USDOT RITA ongoing project.)
2. Develop cost effective procedures for assessing and monitoring retaining walls. Based on the literature review, a comprehensive structural health monitoring (SHM) system for retaining walls will be proposed. The SHM system's instrumentation will be low-cost and easy-to-deploy so that long lengths of a retaining wall systems can be tracked over long periods of time. Wall displacements and rotations will be focused on in addition to the measurement of properties of the soil columns residing behind the retaining wall. The monitoring system will be deployed in a retaining wall system to assess its performance in the field.
3. Develop possible mitigating procedures for repairing retaining walls.
4. Develop asset management plan for retaining walls to be incorporated into MiBRIDGE.
5. Document retaining wall inventory and inspection procedures to be included into the MiSIM.
6. Develop retaining wall elements to be incorporated into a manual similar to Michigan Bridge Element Inspection Manual (MiBEIM)
7. Conduct a half day training event for inspectors for retaining walls describing the retaining wall elements, asset management plan, and inspection procedures developed by this research project.

Failure of any of the above will be found in noncompliance with the contract.

DELIVERABLES:

8. Deliverables will include the development of procedures for retaining wall monitoring and inspection, including wall elements and inspection frequency. Any and all equipment needed for the monitoring and inspection will be purchased and submitted to MDOT. Develop asset management plan for retaining walls to be incorporated into MiBRIDGE. Develop retaining wall inspection procedures and implement them into the Michigan Structure Inspection Manual (MiSIM). Develop retaining wall elements to be incorporated into a manual similar to Michigan Bridge Element Inspection Manual (MiBEIM).

MDOT RESPONSIBILITIES:

If a lane or shoulder closure is required, MDOT will provide traffic control. MDOT will also provide preliminary retaining wall inventory and plans for the walls.

COORDINATION PROCEDURES

Work will be completed in compliance with the Research Implementation Manual

CONSULTANT PAYMENT

All billings for services must be directed to the Department and follow the current Research Implementation Manual. This document contains instructions and forms that must be followed and used for billing. Payment may be delayed or decreased if the instructions are not followed.

Payment to the Consultant for services rendered shall not exceed the maximum amount unless an increase is approved in accordance with the contract with the Consultant.

Direct expenses, if applicable, will not be paid in excess of that allowed by the Department for its own employees in accordance with the State of Michigan's Standardized Travel Regulations. Supporting documentation must be submitted with the billing for all eligible expenses on the project in accordance with the Reimbursement Guidelines. The only hours that will be considered allowable charges for this contract are those that are directly attributable to the activities of this project.

The use of overtime hours is not acceptable unless prior written approval is granted by the MDOT project manager. Reimbursement for overtime hours that are allowed will be limited to time spent on this project in excess of forty hours per person per week. Any variations to this rule should be included in the priced proposal submitted by the Consultant and must have prior written approval by the MDOT project manager.

The basis of payment is Actual Costs for Universities as defined in standard MDOT contracts.

PROPOSAL INFORMATION AND SCORING

Formal proposals are required and shall include the information as outlined in these Guidelines. This section is the information required in the proposal that will be used to score the qualifications of each consultant's proposal. The section numbering correlates to the score sheet. Therefore, the consultant should format their proposals consistent with the outline provided.

1. UNDERSTANDING OF SERVICE: 40 POINTS

Describe understanding of the service intended to be proposed. This information is to be based on the scope of services.

Problem Statement and Background Summary- demonstrates good understanding of problem, looks objectively at problem, specifies problem limits and restricts scope appropriately, and cites relevant literature.

Research Plan- cites specific objectives clearly, technical approach responds to all written and implied requirements, difficult areas are identified and details to overcome are given, represents novel idea or technical approach, plan is feasible, and effort is consistent with scope of problem.

Products and Implementation- proposal clearly defines products to be delivered at completion, includes practical, realistic implementation plan.

MDOT Involvement- MDOT involvement is not excessive and is clearly defined and quantified.

2. QUALIFICATIONS OF TEAM: 30 POINTS –

Describe the structure of the project team including the roles of all key personnel and subcontractors. For each subcontractor describe role in service and include what percent of the task that the subcontractor is expected to provide. Provide résumés for each of the key staff of the prime and subcontractor.

Facilities- proposer has adequate access to equipment and/or laboratory required in study.

Staffing- personnel availability is clearly defined, shows a depth of qualified personnel, proposer has ability to manage a project of this size an sufficient resources to complete study, qualifications are directly related to the requirements of the project, plans for specific key personnel assignment included, and there is a reasonable balance between subcontractor and prime contractor.

3. RELEVANT PAST PERFORMANCE: 30 POINTS

The project manager will contact references and review relevant performance evaluations from the past 5 years.

Record of past accomplishment- proposer satisfactorily completed past projects, was cooperative and flexible, and ended past projects according to the original budget and time schedule.

4. QUALITY ASSURANCE/QUALITY CONTROL (QAQC) PLAN: 5 POINTS

The proposer provided an outline of a QA/QC process. The QA/QC Manager is experienced with MDOT standards and practices.

5. LOCATION: 5 POINTS

The percentage of work hours performed in Michigan will be used for all selections unless the project is for on-site inspection or survey activity. The combination of location and percentage of work performed in Michigan should not exceed 5 points.

Percentage of Work To Be Done in Michigan Score	
95% to 100%	5
80% to 94%	4
50% to 79%	3
25% to 49%	2
10% to 24%	1
Less than 10%	0

6. PRICE: 40 POINTS

Cost score is based on the lowest cost proposed divided by the current proposer cost multiplied by 40. Lowest bid shall receive 40 points.

TOTAL POINTS: 150

Research Proposal Budget Form Worksheet

Project Title _____
 Research Organization _____
 Date _____

									FY1	FY2	FY3	FY4	TOTAL	
SALARIES & WAGES -- MUST COMPLY WITH OMB CIRCULAR A-21														
Specify number of hours to be worked and hourly rate for each individual below: Examples of role of individual are Principal Investigator, Technician, Grad Student, etc. Annual wage increases must not exceed 2%														
(role of individual)														
Name of individual														
Enter FY	FY1 rate	FY1 hrs	FY2 rate	FY2 hrs	FY3 rate	FY3 hrs	FY4 rate	FY4 hrs						
rate & hrs									\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
(role of individual)														
Name of individual														
Enter FY	FY1 rate	FY1 hrs	FY2 rate	FY2 hrs	FY3 rate	FY3 hrs	FY4 rate	FY4 hrs						
rate & hrs									\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
(role of individual)														
Name of individual														
Enter FY	FY1 rate	FY1 hrs	FY2 rate	FY2 hrs	FY3 rate	FY3 hrs	FY4 rate	FY4 hrs						
rate & hrs									\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
(role of individual)														
Name of individual														
Enter FY	FY1 rate	FY1 hrs	FY2 rate	FY2 hrs	FY3 rate	FY3 hrs	FY4 rate	FY4 hrs						
rate & hrs									\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
(role of individual)														
Name of individual														
Enter FY	FY1 rate	FY1 hrs	FY2 rate	FY2 hrs	FY3 rate	FY3 hrs	FY4 rate	FY4 hrs						
rate & hrs									\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
(role of individual)														
Name of individual														
Enter FY	FY1 rate	FY1 hrs	FY2 rate	FY2 hrs	FY3 rate	FY3 hrs	FY4 rate	FY4 hrs						
rate & hrs									\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
(role of individual)														
Name of individual														
Enter FY	FY1 rate	FY1 hrs	FY2 rate	FY2 hrs	FY3 rate	FY3 hrs	FY4 rate	FY4 hrs						
rate & hrs									\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Sub-Total Salary & Wages									\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	

FRINGE BENEFITS -- MUST COMPLY WITH OMB CIRCULAR A-21

Indicate Employee, appropriate negotiated rate for each and description of who the rate applies to.
 (e.g. - Sam Smith, 25%, Summer Faculty. The rate is negotiated between the university and it's cognizant agency

Name									
(Rate Description)									
(% rate)	FY1	FY2	FY3	FY4	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Name									
(Rate Description)									
(% rate)	FY1	FY2	FY3	FY4	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Name									
(Rate Description)									
(% rate)	FY1	FY2	FY3	FY4	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Name									
(Rate Description)									
(% rate)	FY1	FY2	FY3	FY4	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Name									
(Rate Description)									
(% rate)	FY1	FY2	FY3	FY4	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Name									
(Rate Description)									
(% rate)	FY1	FY2	FY3	FY4	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Sub-Total Fringe Benefits					\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

SUBCONTRACTOR -- MUST COMPLY WITH OMB CIRCULAR A-21

A copy of the subcontractor's budget must be attached. An MDOT approved subcontract is required for subcontractor costs in excess of \$25,000 prior to payment of invoices that contain subcontractor work. List all subcontractors on a separate line.

Subcontractor Name & Amt.									\$0.00
Subcontractor Name & Amt.									\$0.00
Sub-Total Subcontractor					\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

TRAVEL -- MUST COMPLY WITH OMB CIRCULAR A-21

Must be in accordance with IDS contract requirements.

In-State Travel (Destinations within Michigan) Provide a separate table itemizing costs.									\$0.00
Out-of-State Travel (Prior approval required) Provide a separate table itemizing costs.									\$0.00
Sub-Total Travel					\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

SUPPLIES -- MUST COMPLY WITH OMB CIRCULAR A-21 (Few items not allowed are: computers, printers, monitors, fax machines, printer paper, toner cartridges, pens, pencils, legal pads, clips, rubber bands, post-it notes, books, notebooks, binders, folders, diskettes, postage stamps, chairs, office furniture, calendars, paper punches, business cards, staplers, waste cans, etc.)

Provide details if cost exceeds \$2,000. Individual line items in excess of \$1,000 require a detailed explanation regardless of total cost

(Description)						\$0.00
(Description)						\$0.00
(Description)						\$0.00
(Description)						\$0.00
(Description)						\$0.00
(Description)						\$0.00
(Description)						\$0.00
Sub-Total Supplies		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

CAPITAL EQUIPMENT -- MUST COMPLY WITH OMB CIRCULAR A-21 - Purchased specifically for this project

List items with a value in excess of \$500. Equipment in excess of \$5,000 requires prior approval.

(Description)						\$0.00
(Description)						\$0.00
(Description)						\$0.00
(Description)						\$0.00
(Description)						\$0.00
(Description)						\$0.00
(Description)						\$0.00
(Description)						\$0.00
Sub-Total Equipment		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

OTHER EXPENSES -- MUST COMPLY WITH OMB CIRCULAR A-21 (Few items not allowed are: memberships in professional & scientific organizations, local telephone lines, cell phones, etc.)

Any project expense which does not fall into another category. Provide detailed explanation of the expense and applicable breakdown of costs (e.g. graduate student tuition).

(Description)						\$0.00
(Description)						\$0.00
(Description)						\$0.00
(Description)						\$0.00
(Description)						\$0.00
Sub-Total Other Expenses		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

Total Sub-Totals \$0.00 \$0.00 \$0.00 \$0.00 \$0.00

INDIRECT COSTS -- MUST COMPLY WITH OMB CIRCULAR A-21

Indirect cost rates are negotiated between the university and it's cognizant agency. Indicate the type of negotiated indirect rate used and the percentage (e.g. On Campus Research, 52%)

(Type)	(%)								
		FY1	FY2	FY3	FY4				
Enter \$ Amt per FY						\$0.00	\$0.00	\$0.00	\$0.00
Total Indirect Costs						\$0.00	\$0.00	\$0.00	\$0.00

TOTAL PROJECT COSTS \$0.00 \$0.00 \$0.00 \$0.00 \$0.00

UNIVERSITY MATCHING FUNDS \$0.00

TOTAL MDOT PROJECT COSTS \$0.00 \$0.00 \$0.00 \$0.00 \$0.00